S/N 09/863,381 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Robert A. Blanchette et al.	Examiner: Michelle R Kizilkaya
Serial No.: 09/863,381	Group Art Unit: 1661
Filed: May 24, 2001	Docket No.: 600.516US1
Title: CULTIVATED AGARWOOD	

DECLARATION OF DR. ROBERT A. BLANCHETTE UNDER 37 C.F.R. § 1.132

1. I, Robert A. Blanchette, Ph.D., am a co-inventor of the above-identified patent application. I am a Professor and Wood Microbiologist in the Department of Plant Pathology at the University of Minnesota, St. Paul, Minnesota. I have been a faculty member of the University of Minnesota since 1980. My research focuses on forest pathology and wood microbiology, including tree defense mechanisms, the deterioration processes of wood, biotechnological uses of forest fungi, biological control of forest pathogens, and the conservation of archaeological wood and wood of historic value. I have published two books and over 180 book chapters and refereed journal papers in these areas.

2. In the Office Action mailed June 20, 2003, the Examiner refers to Rahman and Basak, Banu Biggyan Patrika, 9, 87-93 (1980). Rahman and Basak describe experiments that examined the role of wounding and fungal infestation in the formation of agar in the wood of *Aquilaria agallocha* trees (abstract). In the study, a number of holes were made in *A. agallocha* trees using a brace and bit (Materials and Methods, page 88, right column). Rahman and Basak state that the trees were located in the Lawachara forest near Srimangal, Sylhet, in Bangladesh. The holes received (a) a fungus; (b) a wooden plug; (c) 2% malt agar medium; or (d) nothing. Rahman and Basak refer to (b) and (c) as "closed controls" and to (d) as the "open control" (page 88, right column). The holes containing inoculants (a) and (c) were also filled with sterilized cotton and covered with polyethylene sheets.

3. Aquilaria trees are classified as "tropical" trees (*i.e.*, are not "temperate" trees). Aquilaria have an unique physiology. In addition to having phloem around the circumference of the tree, *i.e.*, outside the vascular cambium layer, they have "included phloem." The included phloem is found throughout the xylem of Aquilaria trees, and contains bundles of phloem. These bundles can produce differentiating cells that can fill internal tree wounds with callus cells. Thus, like other trees, Aquilaria can close an open wound with normal callus produced in the wounded cambium, but different from other trees can also form internal callus tissue. Therefore, a wound in an Aquilaria tree closes rapidly by one or both of the Aquilaria wound closure mechanisms.

4. In my experience with *Aquilaria* spp. growing in a tropical environment, such as the Lawachara forest, the "open control" of the Rahman and Basak study would have closed very rapidly by the formation of callus tissue from both inside and outside of the hole.

5. Wounds in trees may produce discolored wood that may lead to decay, but this discolored and/or decayed wood formed in Aquilaria trees is not necessarily agarwood. Moreover, "oleoresin" or "resin" produced in a tree in response to a wound is not always agarwood formation. Only specific types of resin produced in some reactions produces the highly aromatic and valued agarwood. The presence of an aromatic resin in agarwood can be detected by chemical analysis such as mass spectrometry.

6. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that the statements are made with the knowledge that willful false statement and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Sept. 11, 2003
Date

R. A. Blanchette
Robert A. Blanchette, Ph. D.